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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,845	09/29/2003	William Frank Micka	TUC920030100US1	4448

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EXAMINER

BARTON, JONATHAN A

ART UNIT PAPER NUMBER

2186

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/674,845	<b>Applicant(s)</b> MICKA ET AL.	
	<b>Examiner</b> Jonathan Barton	<b>Art Unit</b> 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/24/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-9, 11, 12-20, 22, 24-31 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Bish et al. (US 6,467,024)

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

- a. As for claim 1, 12, and 24 Bish et al. disclose
  - i. receiving a command to form a consistency group with respect to data received at a first storage site that is mirrored to a second storage site (Col. 5 Lines 9-19);

- ii. providing a first data structure indicating updates to the first storage site not included in the consistency group that are received after the command (Col. 7 Lines 14-19, Col. 8 Lines 28-34);
  - iii. providing a second data structure indicating updates to the first storage site in the consistency group to be formed (Col. 7 Lines 14-19, Col. 8 Lines 28-34);
  - iv. transmitting a command to cause data copied to the second storage site that is part of the consistency group to be copied to a third storage site (Col. 6 Lines 1-4 & 24-29);
  - v. receiving indication when the data in the second storage site that is part of the consistency group is copied to the third storage site (Col. 8 Lines 1-9).
- b. As for claims 2, 13 and 24 Bish et al. disclose
- vi. maintaining a flag indicating which of the first and second data structures to use to indicate updates received after the command to form the consistency group (Col. 8 Lines 1-9, 26-34); and
  - vii. toggling the flag to indicate the data structure not currently indicated by the flag, wherein the flag identifies the data structure that indicates updates to the first storage site not included in the consistency group (Col. 8 Lines 1-9, 26-34).

- c. As for claims 3, 14, and 25 Bish et al. disclose
  - viii. detecting a failure at the second storage site (Col. 8 Lines 13-22);
  - ix. determining whether the data in the consistency group was copied to the third storage site (Col. 8 Lines 13-22); and
  - x. copying the updates at the first storage site indicated in the first data structure to the third storage site after determining that the data in the consistency group was copied to the third storage site (Col. 8 Lines 13-22).
- d. As for claims 4, 15, and 26 Bish et al. disclose
  - xi. copying the data at the first storage site indicated in the first and second data structures to the third storage site after determining that the data in the consistency group was not copied to the third storage site (Col. 8 Lines 45-50).
- e. As for claims 5, 16, and 27 Bish et al. disclose
  - xii. merging data indicated in the first and second data structures into one of the data structures to indicate data in the consistency group that needs to be copied to the third site, wherein the other of the data structures is used to indicate updates to data that is not in the consistency group (Col. 10 Lines 56-65).

- f. As for claims 6, 17, and 28 Bish et al. disclose
  - xiii. synchronously copying updates from the first storage site to the second storage site, wherein the data structures indicate updates to the first storage site that were successfully synchronously copied to the second storage site (Col. 8 Lines 45-50 & 26-34).
- g. As for claims 7, 18, and 29 Bish et al. disclose
  - xiv. the first and second storage sites are separated by a first distance and the second and third storage sites are separated by a second distance, wherein the second distance is substantially greater than the first distance (Col. 4 Line 65 – Col. 5 Line 4. Okay, lets be honest. “A distance” can be 1mm. So if the “first distance” is 1mm, and the “second distance” is say 1.5mm then that is a “substantial difference” of 50%. Qualify this claim a little bit better and it might carry some sort of useful weight).
- h. As for claims 8, 19, and 30 Bish et al. disclose
  - xv. receiving at a second storage site updates from the first storage site (Col. 5 Lines 9-19);
  - xvi. providing a first data structure indicating updates at the second storage site to copy to a third storage site (Col. 7 Lines 14-19, Col. 8 Lines 28-34);

- xvii. receiving a command to form a consistency group; using a second data structure at the second storage site to indicate updates received from the first storage site after receiving the command that are not included in the consistency group to be formed (Col. 5 Lines 9-19, Col. 7 Lines 14-19, Col. 8 Lines 28-34); and
  - xviii. signaling the first storage site in response to copying the updates in the consistency group indicated in the first data structure to a third storage site (Col. 8 Lines 1-9).
- i. As for claims 9, 20, and 31 Bish et al. disclose
- xix. merging indications of updates in the first and second data structures into the first data structure in response to copying the updates in the consistency group indicated in the first data structure to the third storage site (Col. 10 Lines 56-65); and
  - xx. indicating in the second data structure updates from the first storage site received after merging the first and second data structure (Col. 8 Lines 1-9, 26-34).
- j. As for claims 11, 22, and 33 Bish et al. disclose
- xxi. determining whether the second data structure is being used to indicate updates from the first storage site not in one consistency group in

response to receiving the command to form the consistency group (Col. 5 Lines 9-19, Col. 7 Lines 14-19, Col. 8 Lines 28-34);

xxii. merging indications of updates in the first and second data structures in the first data structure in response to receiving the command to form the consistency group and determining that the second data structure is being used to indicate updates from the first storage site not in one consistency group (Col. 10 Lines 56-65); and

xxiii. indicating in the second data structure updates from the first storage site received after merging the first and second data structure (Col. 8 Lines 1-9, 26-34).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 10, 21, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bish et al. (US 6,467,024) in view of Kern et al. (US 5,720,029).

k. As for claims 10, 21, and 32 Bish et al. fail to disclose continuously asynchronously copying the updates indicated in the first data structure to the remote site. However Kern et al. teach this (Col. 3 Line 65 – Col. 4 Line 20). It



would have been obvious to one of ordinary skill in the art at the time of the invention to combine the continuous asynchronous copying of Kern et al. with the consistency group of Bish et al. because asynchronous copying provides better system performance (Kern – Col. 3 Line 65 – Col. 4 Line 5).

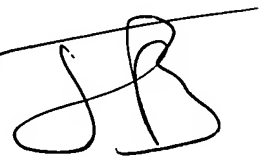
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Barton whose telephone number is 571-272-8157. The examiner can normally be reached on Monday - Friday 8:30 - 5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jonathan Barton  
Examiner  
Art Unit 2186



JB



MATTHEW KIM  
SUPERVISORY PATENT EXAMINER  
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